

### REMARKS

This responds to the Office Action mailed on November 13, 2006.

Claims 1 and 30 are amended, claim 3 is canceled, and claim 31 is added; as a result, claims 1-2, 4-18 and 29-31 are now pending in this application.

### Claim Objections

Claim 3 was objected to under 37 C.F.R. 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 3 has been canceled. Claims 1 and 30 have been amended for clarity and include the subject matter of Claim 3. Claim 31 has been added and includes the description of an “acid group” which at least includes the –COOH group and phosphoric acid mentioned in the specification at page 6, paragraph [00026].

### Amendments to Specification

The specification has been amended to correct the spelling of “acrylonitrile” and “elasticizing.”

### §103 Rejection of the Claims

Claims 1-2, 5-7 and 29-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Okaniwa et al. (JP 2003-082012) in view of Singleton et al. (US 5,245,865).

Applicant respectfully submits that the Examiner did not make out a *prima facie* case of obviousness for the following reasons:

- (1) even if combined, the cited references fail to teach or suggest all of the elements of Applicant’s claimed invention;
- (2) the cited references teach away from Applicant’s claimed invention;
- (3) there is no suggestion to combine Okaniwa with Singleton.

### Claimed Features Lacking in Combination.

The references when combined must teach or suggest all the claim elements. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claim 1 recites: “a curable liquid electrolyte disposed between the first and second

electrodes, wherein the curable liquid electrolyte comprises: a protonic polymer having a polymeric backbone with side chains containing acidic groups for conducting protons in an electrochemical cell; a first vinyl monomer comprising a -COOH- group or phosphoric acid; and a cross linking agent comprising a second vinyl monomer.” (from Applicant’s claim 1.)

In contrast, Okaniwa describes a polyelectrolyte used in fuel cells or batteries that is not a curable liquid electrolyte. The polyelectrolyte of Okaniwa is built on aromatic monomers and is not curable *in situ*. The reference does not teach or suggest a curable liquid electrolyte disposed between the first and second electrodes as recited in Claim 1. The reference, as explained by the Examiner, does not disclose a first vinyl monomer comprising a -COOH group or phosphoric acid. Nor does it disclose a cross linking agent comprising a second vinyl monomer.

Even when combined with Singleton, the references fail to disclose every element. Singleton discloses a second polymeric material cross linked with a first porous polymeric support, to form a microporous web. The Singleton reference describes forming a solid polymeric matrix onto which a second polymer is reacted. The references combined do not disclose a curable liquid electrolyte that can be cured *in situ* between two electrodes and which comprises the monomers described.

#### **The Cited References Teach Away From Applicant’s Claimed Invention.**

A factor cutting against a finding of motivation to combine or modify the prior art is when the prior art teaches away from the claimed combination. A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path the applicant took. *In re Gurley*, 27 F.3d 551, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994); *United States v. Adams*, 383 U.S. 39, 52, 148 USPQ 479, 484 (1966); *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (C.C.P.A. 1969); *In re Caldwell*, 319 F.2d 254, 256, 138 USPQ 243, 245 (C.C.P.A. 1963).

The Okinawa reference describes a polyelectrolyte that may be cross linked in the presence of a proton conductivity polymer. The Singleton reference describes reacting a second polymeric material with a first solid polymer matrix. The references teach away from the claimed combination because combining the two would teach a cross linking or polymerization

reaction that would need to take place on an inert porous polymeric matrix, as described by the Singleton reference. The Okinawa reference does not describe an *in situ* curable electrolyte, so the only *in situ* teaching would be to use the polyelectrolytes of Okinawa with the porous polymeric matrix support that Singleton teaches. This teaches away from the curable liquid electrolyte of Applicant's claimed invention.

**No Suggestion to Combine.**

Even if the Examiner shows that all elements are present between the Okinawa reference and the Singleton reference, there is no suggestion or motivation to combine the elements. Neither reference describes the *in situ* forming of a curable liquid electrolyte and do not describe any motivation to cure a liquid electrolyte with the structure described in Applicant's claims.

As all rejections are based on the Okinawa and Singleton references, Applicant respectfully requests that the rejections be withdrawn. As all claims depend directly or indirectly from Claim 1 or Claim 30 and Claim 31, which have a similar scope as Claim 1, it is believed that the claims are in allowable condition.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. Applicant reserves all rights to pursue any cancelled claims in a subsequent patent application claiming the benefit of priority of the present patent application, and to request rejoinder of any withdrawn claim, as required by MPEP § 821.04.

The Examiner is invited to telephone Applicant's attorney at (612) 359-3261 to facilitate prosecution of this application. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

GERARD F MCLEAN ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. Box 2938  
Minneapolis, MN 55402  
(612) 359-3261

Date 3/13/07

By 

Benjamin C. Armitage  
Reg. No. 57,213

**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 13<sup>th</sup> day of March 2007.

PATRICIA A. HULTMAN

Name

  
Signature